Claims

1. A method for processing data packets of a data stream in a communication system, the method comprising:

5   depending on a predetermined feature of a data packet, processing the data packet as one of a slow data packet on a slower path or a fast data packet on a faster path, wherein the data packet is processed faster in the faster path than in the slower path;

10   reordering the data packets after the processing into the order they had prior to the processing;

storing the fast data packets that were processed on the faster path in a memory if not all the slow data packets that before the processing were in order before the fast data
15   packets and were processed on the slower path are received at an output; and,

fetching the stored fast data packets from the memory and outputting to the output when all the slow data packets that before the processing were in order before the fast data
20   packets are received at the output.

2. A method as recited in claim 1, comprising:

producing a sync signal if a last slow data packet is followed by a fast data packet;

25   giving the sync signal to the slower processing path after the last slow data packet;

generating a ready signal when the sync signal is processed in the slower path; and,

in response to the ready signal, giving the stored fast
30   processed data packets out of the memory and delivering further fast processed data packets to the output directly after the stored fast data packets are drained out of the memory.

35   3. A method as recited in claim 1, comprising:

counting the number of slow data packets that are in

order before a fast data packet before the processing;

storing the fast processed fast data packets in the memory if not all counted slow data packets are yet processed;

5   giving the stored fast data packets out of the memory to the output, when the counted slow data packets have been processed and given out to the output; and,

assigning further fast processed data packets to the output directly after the stored fast data packets are
10   drained out of the memory to the output.

4.   A method as recited in any claim 1, comprising: processing at least some data flows simultaneously;

processing the data flows independently; and,
15   processing slow and fast data packets of the same data flow in order within the data flow.

5.   A method as recited in claim 1, comprising:

processing a first data packet of a data flow in the
20   slow path to generating features from the data packet;

storing the generated features; and, processing the following data packets of the data flow in the fast path using the stored features.

25   6.   A method as recited in claim 5, comprising:

determining the features by processing a header of the data packet;

determining from the features a direction to deliver to the data packets of the data flow;
30   storing the direction; and,

sending following data packets of the data flow based on the stored direction.

7.   A method as recited in any of claim 1, comprising:
35 counting, via a counter, a number for slow data packets that

are delivered to an input queue of the slower path;

counting down the number by the counter if a processed slow data packet leaves the slower path;

storing processed fast data packets that are given out of the faster path in a memory if the number of the counter is higher than a predetermined value; and,

draining stored fast data packets out of the memory to the output if the number of the counter equals the predetermined value; and, giving further processed fast data packets out directly to the output.

8.   A data processing system comprising: an input connected to a distributing unit selectively connectable to an input of a slower processing unit and an input of a faster processing unit having an output connected to an input of a second distributing unit selectively connectable to a system output and a memory, wherein an output of the memory and an output of the slower processing unit are connected to the system output, wherein the first distributing unit, in use, checks a predetermined feature of a data packet and assigns the data packet to the slower or faster processing unit in dependence on the feature of the data packet, wherein the second distributing unit in use assigns the fast data packet that was processed by the faster processing unit to the memory if not all slow data packets that before the processing were in order before the fast data packet was processed and given to the system output, wherein the second distributing unit in use gives the processed fast data packets to the system output if all slow data packets that before the processing were in order before the fast data packet was processed and given to the system output, and wherein the second distributing unit in use gives the processed fast data packets to the system output after all in the memory stored fast data packets are drained out to the system output.

9.   A data processing system as recited in claim 8, wherein the first distributing unit in use generates a sync signal

if a slow data packet is followed by a fast data packet and
assigns the sync signal to the slower processing unit, the
slower processing unit in use generates a ready signal and
gives the ready signal to the second distributing unit and
5   the memory in response to processing of the sync signal, the
second distributing unit in use puts the processed fast data
packets in the memory until the ready signal is recognised,
the memory in use drains the stored fast data packets to the
system output after receiving the ready signal, and the
10   second distributing unit in use assigns the processed fast
data packets after draining the stored fast data packets of
the memory to the system output directly.

10. A data processing system as recited in claim 8,
15   comprising a packet counter connected to the input and the
output of the slower processing unit for detecting the number
of slow data packets that are to be processed in the slower
processing unit, for detecting the number of the processed
slow data packets that leave the slower processing unit, and
20   for giving a ready signal to the second distributing unit
and the memory, if all counted slow data packets were
processed, the memory draining the stored fast data packets
to the system output on receipt of the ready signal, and the
second distributing unit connecting the output of the fast
25   path with the system output on drainage of the memory.

11. A data processing system as recited in claim 10, wherein
the packet counter counts the slow data packets of different
data flows, the system comprising a plurality of memories
30   each for storing processed fast data packets of a separate
data flow faster processed in the faster processing unit than
the slow data packets of the respective data flow that prior
to processing were in order before the fast data packets.

35   12. A program storage device readable by a digital
processing apparatus and having a program of instructions
which are tangibly embodied on the storage device and which

are executable by the processing apparatus to perform a
method of altering a header of an incoming frame of network
node to a modified header of an outgoing frame, the method
comprising:

5   reordering the data packets from the memory and
outputting to the output when al the slow data packets that
before the processing were in order before the fast data
packets are received at the output.

         storing the fast data packets that were processed on the
10   faster path in a memory if not all the slow data packets that
before the processing were in order before the fast data
packets and were processed on the slower path are received at
an output; and,

         fetching the stored fast data packets from the memory
15   and outputting to the output when all the slow data packets
that before the processing were in order before the fast data
packets are received at the output.